

Appl. No. : 10/006,371
Filed : December 10, 2001

REMARKS

Claim 6 has been amended by this paper, and Claims 1-5 and 7-17 remain unchanged by this amendment. By this paper, Claims 1-17 are present for further examination.

In the Office Action mailed December 14, 2005, Claims 1-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kellogg et al. (U.S. Patent No. 6,073,589, hereinafter "Kellogg") in view of Liao et al. (U.S. Patent No. 6,599,385, hereinafter "Liao").

As noted by the Examiner, Kellogg is directed to "a microsystem platform and a micro-manipulation device to manipulate the platform by rotation, thereby utilizing the centripetal forces resulting from rotation of the platform to motivate fluid movement through microchannels embedded in the microplatform." (Kellogg, col. 1, lns. 21-25). Various structures are disclosed for performing microanalytic and microsynthetic analyses and procedures (Kellogg col. 1, lns. 16-18). Furthermore, the Examiner noted that "disks of the invention are fabricated with an injection molded, optically-clear base layer having optical pits in the manner of a conventional compact disk (CD)." (See Kellogg, col. 8, lns. 37-40). Kellogg also teaches that "other layers of polycarbonate of varying thickness are laid down on the disk in the form of channels, reservoirs, reaction chambers and other structures, including provisions on the disk for valves and other control elements." (Col. 8, lns. 51-54). However, as the Examiner pointed out, "Kellogg does not specifically teach the process of making the microfluidic compact disc." (Office Action, p. 3, lns. 18-19).

The Examiner then indicates that "Liao teaches process and apparatus of a multi-layer optical information record carrier (CD) which has a plurality of layers of reflecting surfaces with pits for recording information (abstract)." (Office Action, p. 3, lns. 20-23).

With reference to Claim 1, Applicant notes that the process for manufacturing optical analysis disks set forth in that claim includes, *inter alia*:

- patterning an intermediate adhesive layer with a pattern corresponding to predetermined microfluidic structures;

- providing a covered disc having molded microfluidic structures;

- applying said cover disc on to said intermediate adhesive layer so as to match said molded microfluidic structures to said pattern to bond the cover disc on to the lens discs.

As noted by the Examiner, Kellogg does not specifically teach the process of making the microfluidic compact disc. In fact, Kellogg also does not even describe use of a cover disc in

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conjunction with the structures disclosed in the Kellogg patent. Therefore neither the structure nor the process associated with applicant's claim 1 is taught or suggested by Kellogg.

Furthermore, Liao is directed to a manufacturing method of a CD, having "a plurality of layers of reflecting surfaces with pits for recording information, (abstract lines 2-3). There is neither any teaching nor suggestion in Liao as to the manufacture of disks which include microfluidic structures, or a cover disc having molded microfluidic structures. Furthermore, there is a no teaching or suggestion in Liao as to the process defined in Claim 1, and in particular those steps set forth above, including, for example, "applying said cover disc onto to said intermediate adhesive layers so as to match said molded microfluidic structures to said pattern to bond the cover disc on to the lens disc." The process of Liao does not address the production of a disk which includes microfluidic structures, thus the process disclosed there is not applicable to the formation of such structures.

Even if the processes disclosed in Liao could be applied to the structures disclosed in Kellogg, there is no teaching in either of those references as to the steps defined in Claim 1, which include, *inter alia*, "providing a cover disc having molded microfluidic structures" and "applying said cover disc onto said intermediate adhesive layer" in the manner defined by Claim 1. Accordingly, Applicant respectfully submits that neither Kellogg nor Liao, taken alone or combination, teach nor would they have made obvious the subject matter of Applicant's independent Claim 1.

Furthermore, Applicant submits that neither Kellogg nor Liao teach or make obvious the subject matter of Claim 2, which defines the intermediate adhesive layer as being "patterned according to capturing chemistry spots", nor do they make obvious the features of Claim 3 which defines the intermediate adhesive layer as being applied by "a transfer adhesive technique." Likewise, neither Kellogg nor Liao describe or make obvious the subject matter of Claim 4 which includes an intermediate adhesive layer which is "applied by a printing technique", nor do they teach or make obvious the process defined in Claim 5 which indicates that the intermediate adhesive layer "is made of a thermal glue."

With regard to Claim 6, Applicant notes that neither Kellogg nor Liao teach, nor would their combination have made obvious, all of the limitations of Claim 6 including, *inter alia*:

"Transferring on to said mastering support a pattern design of microfluidic structures; . . .

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Molding said microfluidic structures in a cover disc according to said plated stamper.”

As was noted above, Kellogg does not define the means by which microfluidic structures may be made in a disc environment. Liao does not address microfluidic structures, and thus does not teach or suggest a process by which action such as “transferring on to said mastering support a pattern design of microfluidic structures” could have been accomplished. Furthermore, neither reference defines a cover disc wherein microfluidic structures are molded according to a plated stamper. Accordingly, Applicant respectfully submits neither Kellogg nor Liao, taken alone or in combination, teach nor would they have made obvious the subject matter of Claim 6.

Furthermore, Applicant submits that there is neither any teaching nor suggestion which would have made obvious the subject matter of dependent Claim 7, indicating that the “mastering support is a mastering glass”. Furthermore, there is neither any teaching nor suggestion in Kellogg nor Liao which would have made obvious the subject matter of Claim 8, wherein the “mastering support is prepared by a process of cleaning.” There is also no teaching or suggestion in either Kellogg or Liao with regard to dependent Claim 10, which indicates that the “coating of a photoresist composition is carried out by dipping, spray coating, or spin coating.” In addition, Applicant submits that since the processes discussed above with respect to Claims 1 and 6 are neither taught nor made obvious by Kellogg or Liao, that the repetition of those steps to obtain multi-layer microfluidic structures, as defined in Claim 11, also would not have been taught or made obvious by those references taken alone or combination. Accordingly, Applicant submits that Claim 11 also defines subject matter which is patentable over Kellogg and Liao.

Furthermore, neither Kellogg nor Liao teaches the process of Claim 17, wherein the intermediate adhesive layer “is made of a thermoglue.” Thus, Applicant submits that Claim 17 would also not have been made obvious by either Kellogg or Liao, taken alone or combination. Since Claims 9 and 12 depend from Claims 1 and 6, Applicant respectfully submits that Claims 9 and 12 also define subject matter which is patentable over Kellogg and Liao, taken alone or in combination, for at least the reasons set forth above with respect to Claims 1 and 6.

In view of the above, Applicant respectfully submits that Claims 1-12 and 17 define subject matter which is patentable over Kellogg and Liao.

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Claim 13 defines an optical analysis disk having microfluidic structures, which includes, *inter alia*:

“a patterned adhesive as intermediate layer for disc bonding; and
a cover disc with molded microfluidic structures.”

Applicant submits that neither Kellogg nor Liao teach or suggest use of a “patterned adhesive” as the intermediate layer. Furthermore, as was indicated above, neither of the references define or suggest a “cover disc with molded microfluidic structures.” In the absence of such teachings or suggestions, Applicant respectfully submits that Claim 13 defines subject matter which is neither taught by, nor would it have been made obvious by, Kellogg or Liao, taken alone in combination. Furthermore, Applicant respectfully submits that neither Kellogg nor Liao teaches nor suggests the subject matter of dependent Claims 14-16 which includes a lens disk which comprises signaling tracks (Claim 14); the patterned adhesive being “patterned according to capturing chemistry spots” (Claim 15); the patterned layer being a thermal glue (Claim 16). Accordingly, Applicant respectfully submits that dependent Claims 14-16 are not taught, nor would they have been made obvious by Kellogg or Liao, taken alone or in combination.

In view of the foregoing, Applicant respectfully submits that Claims 1-17, as presented herein, define subject matter that is patentable over the art of record. Accordingly, Applicant respectfully submits that Claims 1-17 are now in condition for immediate allowance and such prompt allowance of the same is respectfully requested.

In the Office Action mailed December 14, 2005, Claims 1-17 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-15 of copending Application No. 10/348,196. In addition, Claims 1-17 were provisionally rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-46 of copending Application No. 10/351,244.

Applicant respectfully submits that since neither of the indicated copending applications is issued, and since this rejection is a provisional rejection, that the filing of a terminal disclaimer at this point would be premature. Accordingly, in the event that one or both of the indicated copending applications issues before the issuance of the instant patent application, Applicant will file an appropriate terminal disclaimer in order to remove the basis for this rejection. However, until that time, Applicant submits that no action in this regard is necessary. Accordingly,

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Applicant respectfully submits that the instant application is in condition for allowance and such prompt allowance of the same is respectfully requested.

CONCLUSION

The Applicant has endeavored to address all of the concerns of the Examiner in view of the recent Office Action directed to the above-identified application. Accordingly, amendments to the claims, the reasons therefor and arguments in support of the patentability of the pending claims are presented above.

The specific changes to the specification and the amended claims are shown in the above section entitled IN THE CLAIMS. On this set of pages, the insertions are underlined while the ~~deletions are stricken through~~.

Any claim amendments which are not specifically discussed in the above remarks are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments. Rather, these amendments have only been made to increase claim readability, to improve grammar, and to reduce the time and effort required of those in the art to clearly understand the scope of the claim language. Any new claims presented above are of course intended to avoid the prior art, but are not intended as replacements or substitutes for any cancelled claims. They are simply additional specific statements of inventive concepts described in the application as originally filed.

In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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